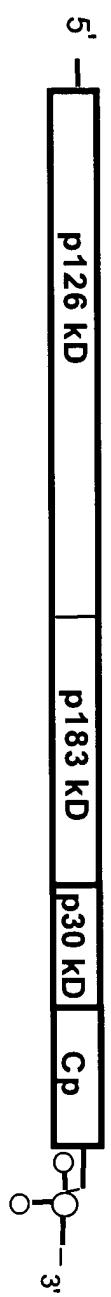


FIG. 1

## Tobamovirus Expression Vectors

TMV



## TMV-Expression Vector

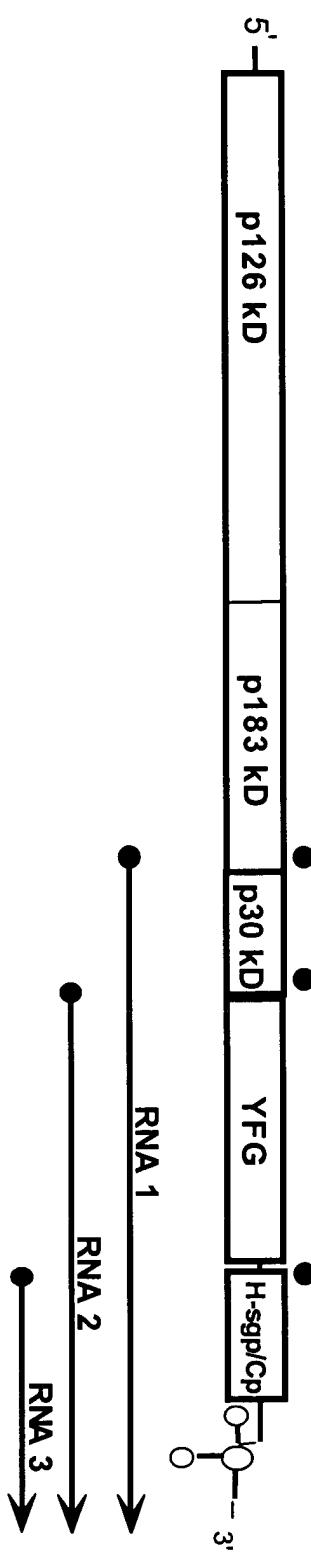


FIG. 2

## Tobamovirus Vector for rGal-A Expression

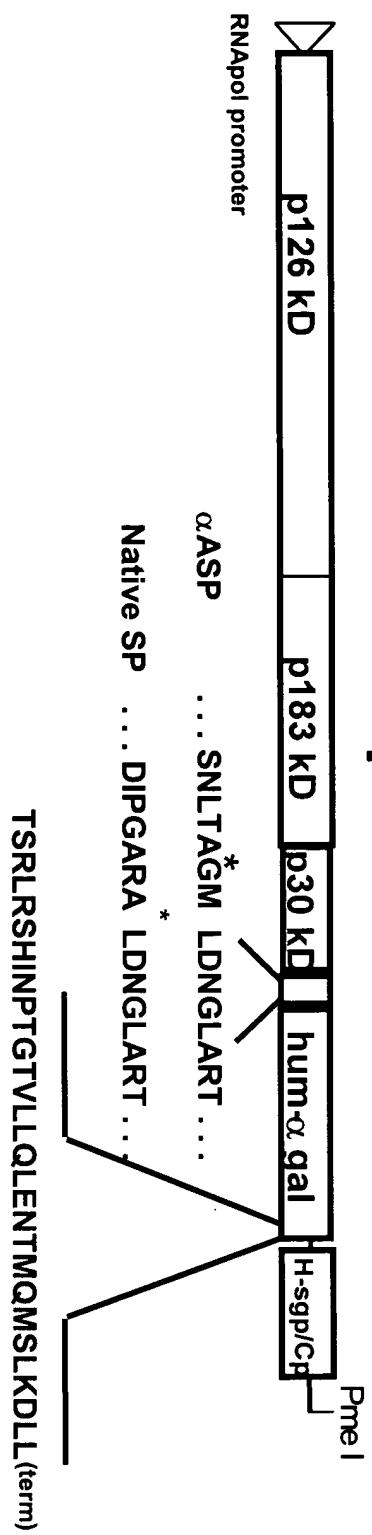


FIG. 3

Accumulation and Activity of WT rGal-A

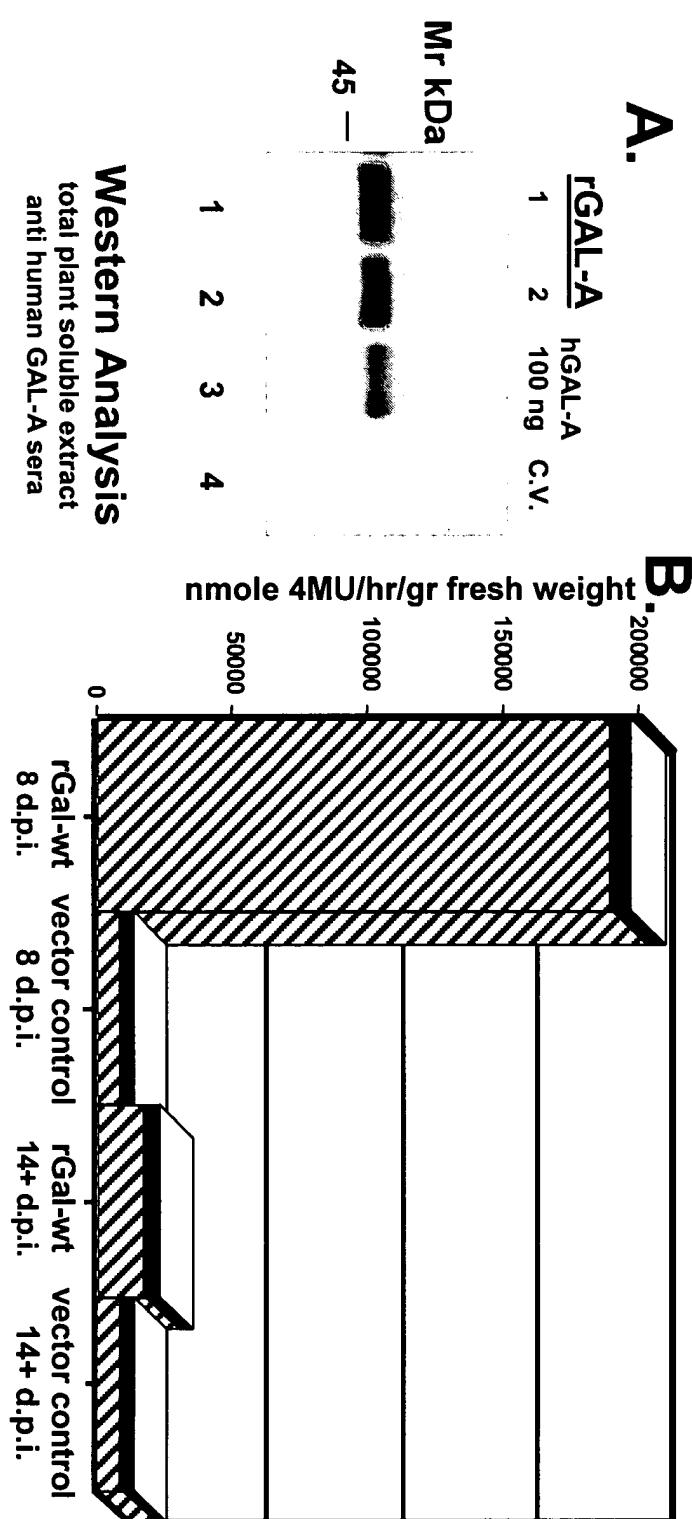


FIG. 4

Accumulation and Activity  
of WT and ER-Targeted rGal-A

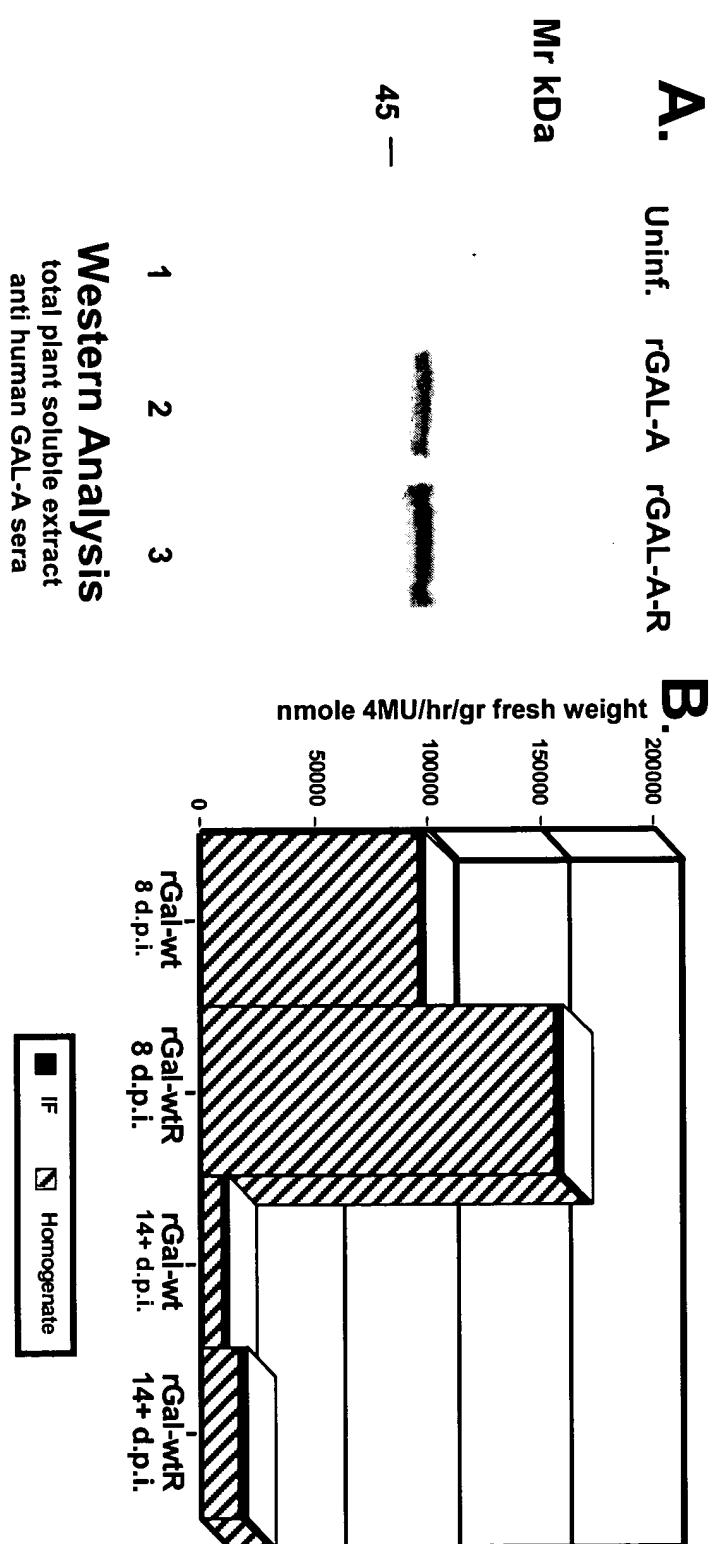


FIG. 5

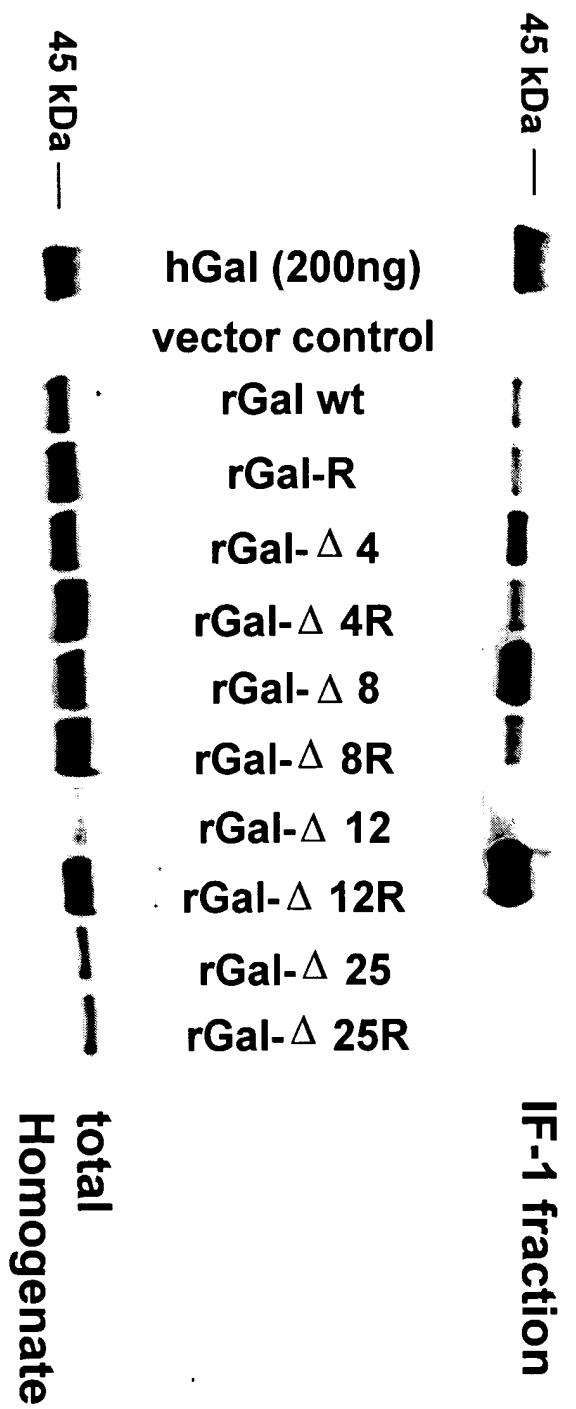
## Carboxy-Modifications to rGal-A

	-30	-20	-10
WT	TS <sup>*</sup> RRLRSHINPTGTGVLLQLENTMQMSLKDLL		
WTR	TSRLRLRSHINPTGTGVLLQLENTMQMSLKDLLSEKDEL		
Δ4	TSRLRLRSHINPTGTGVLLQLENTMQMSLKDLL		
Δ4R	TSRLRLRSHINPTGTGVLLQLENTMQMSLKDLLSEKDEL		
Δ8	TSRLRLRSHINPTGTGVLLQLENTMQMSLKDLLSEKDEL		
Δ8R	TSRLRLRSHINPTGTGVLLQLENTMQMSLKDLLSEKDEL		
Δ12	TSRLRLRSHINPTGTGVLLQLENTMQMSLKDLLSEKDEL		
Δ12R	TSRLRLRSHINPTGTGVLLQLENTMQMSLKDLLSEKDEL		
Δ25	TSRLRLRSEKDEL		
Δ25R	TSRLRLRSEKDEL		
Control virus (GFP, AMP, IFNg)			

\* potential CTPP cleavage (Gene 58:177, 1987).

Fig. 6

Western Blot Analysis of  
Carboxy-modified rGal-A



# FIG. 7

## Enzymatic Activity of Carboxy-Modified rGal-A

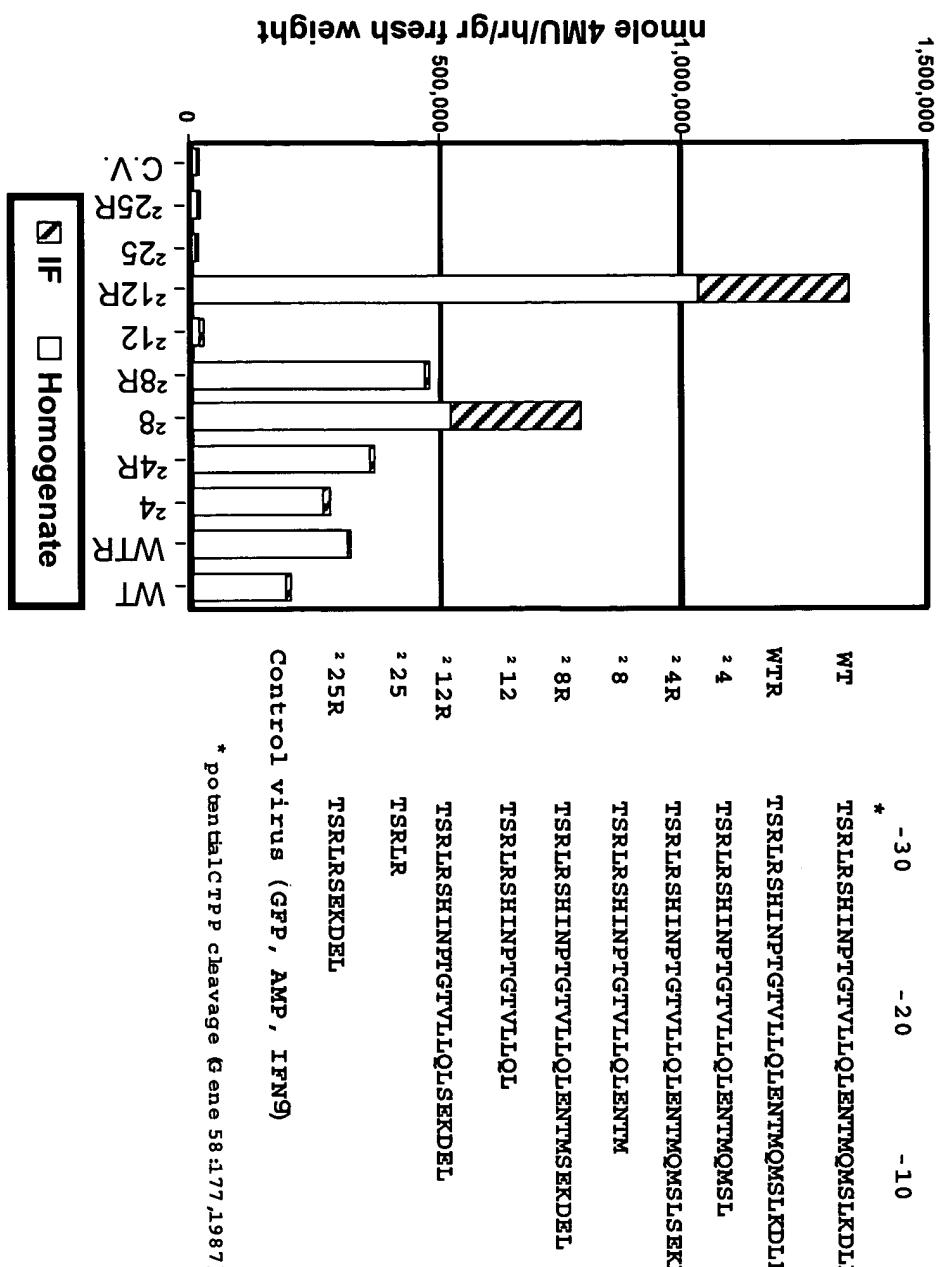
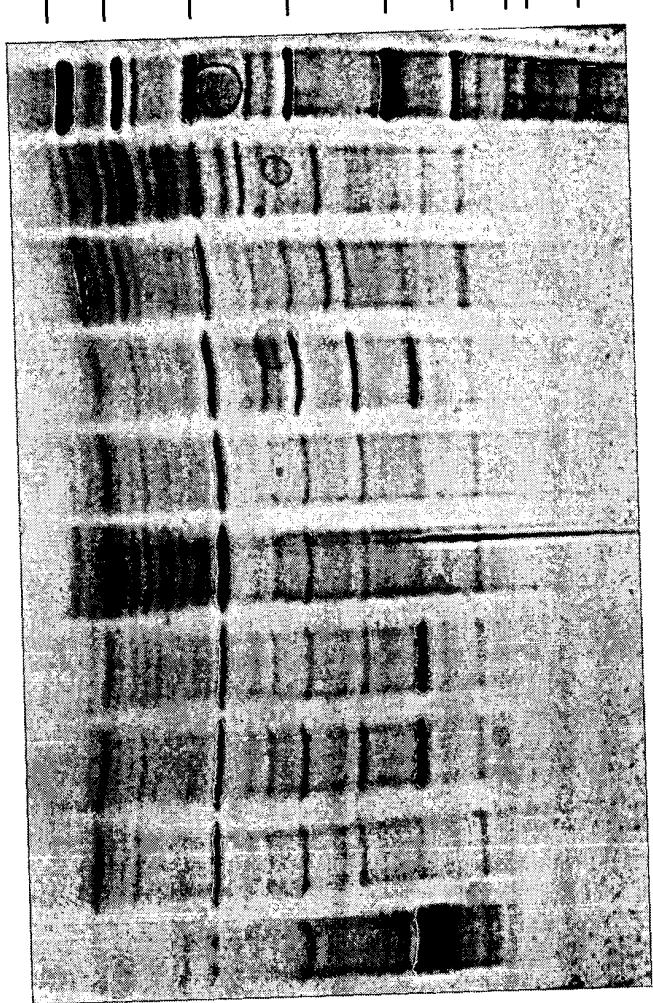


FIG. 8

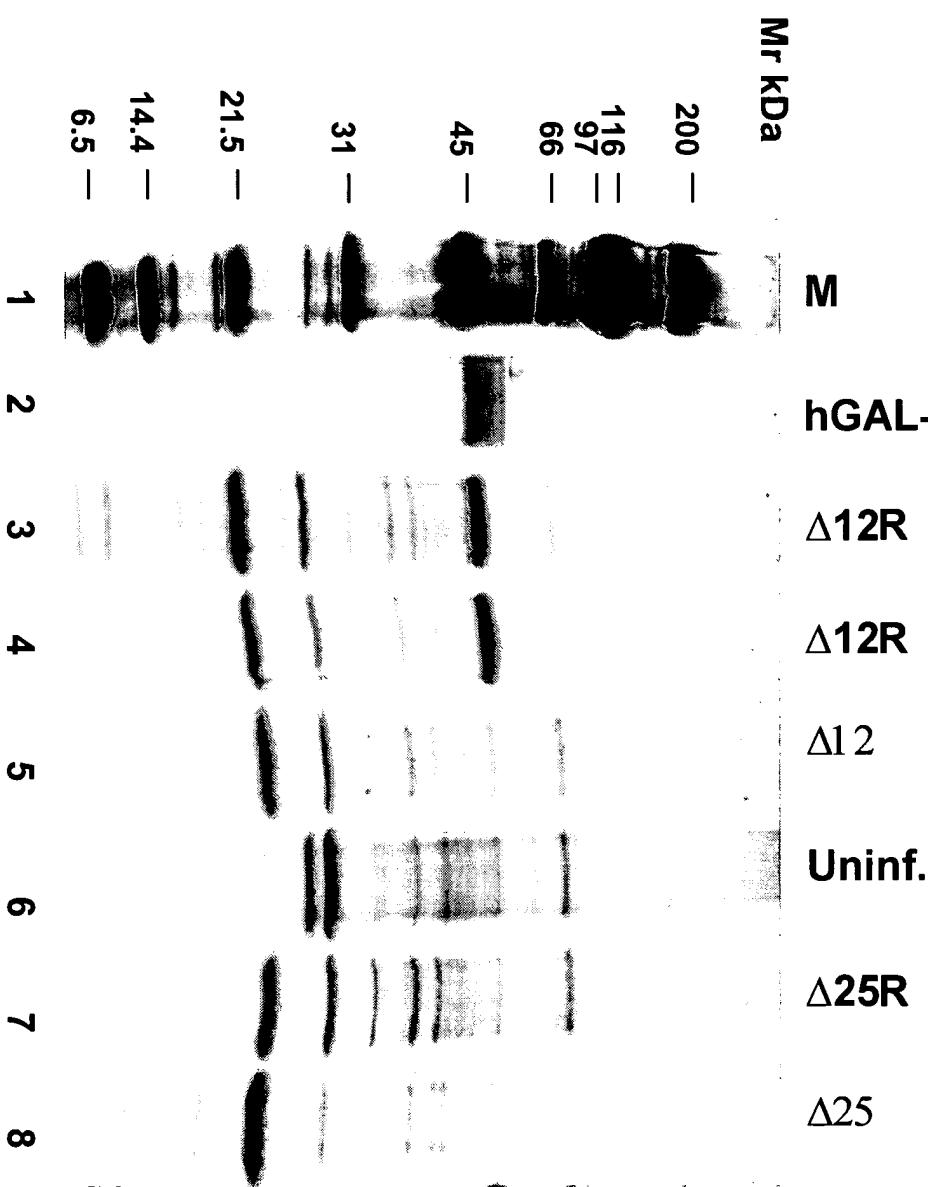
**Coomassie Stain - IF**

Mr kDa      M      C.V.      C.V.       $\Delta 12R$        $\Delta 4$        $\Delta 4R$        $\Delta 8$        $\Delta 8$        $\Delta 8R$   
200 —      C.V.      C.V.       $\Delta 12R$        $\Delta 4$        $\Delta 4R$        $\Delta 8$        $\Delta 8$        $\Delta 8R$   
116 —      C.V.      C.V.       $\Delta 12R$        $\Delta 4$        $\Delta 4R$        $\Delta 8$        $\Delta 8$        $\Delta 8R$   
97 —      C.V.      C.V.       $\Delta 12R$        $\Delta 4$        $\Delta 4R$        $\Delta 8$        $\Delta 8$        $\Delta 8R$   
66 —      C.V.      C.V.       $\Delta 12R$        $\Delta 4$        $\Delta 4R$        $\Delta 8$        $\Delta 8$        $\Delta 8R$   
45 —      C.V.      C.V.       $\Delta 12R$        $\Delta 4$        $\Delta 4R$        $\Delta 8$        $\Delta 8$        $\Delta 8R$   
31 —      C.V.      C.V.       $\Delta 12R$        $\Delta 4$        $\Delta 4R$        $\Delta 8$        $\Delta 8$        $\Delta 8R$   
21.5 —      C.V.      C.V.       $\Delta 12R$        $\Delta 4$        $\Delta 4R$        $\Delta 8$        $\Delta 8$        $\Delta 8R$   
14.4 —      C.V.      C.V.       $\Delta 12R$        $\Delta 4$        $\Delta 4R$        $\Delta 8$        $\Delta 8$        $\Delta 8R$   
6.5 —      C.V.      C.V.       $\Delta 12R$        $\Delta 4$        $\Delta 4R$        $\Delta 8$        $\Delta 8$        $\Delta 8R$



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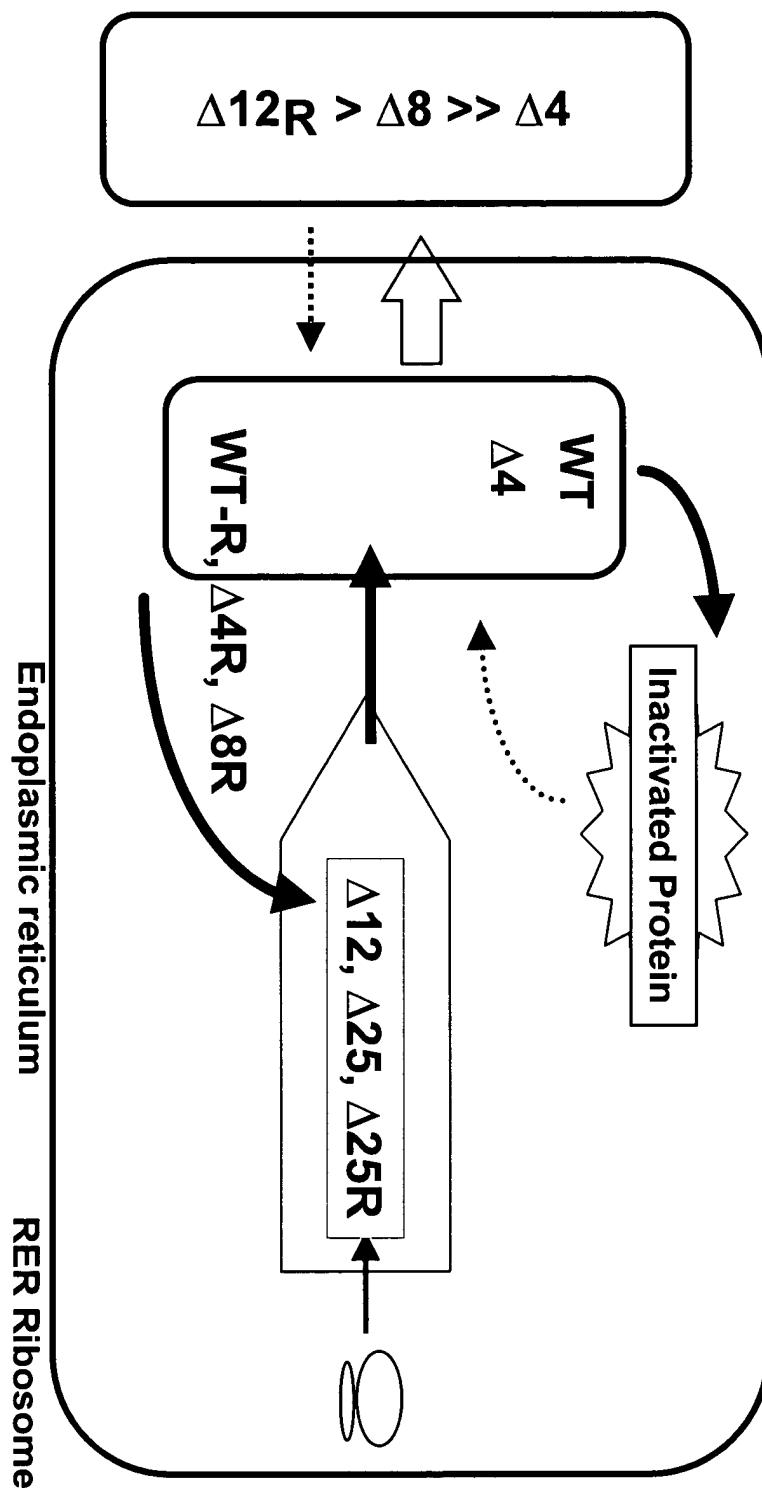
**FIG. 9**  
**Coomassie Stain - IF**



BEST AVAILABLE COPY

FIG. 10

Schematic of rGal-A Secretion  
Golgi Network Subcellular target  
Apoplast



# FIG. 11

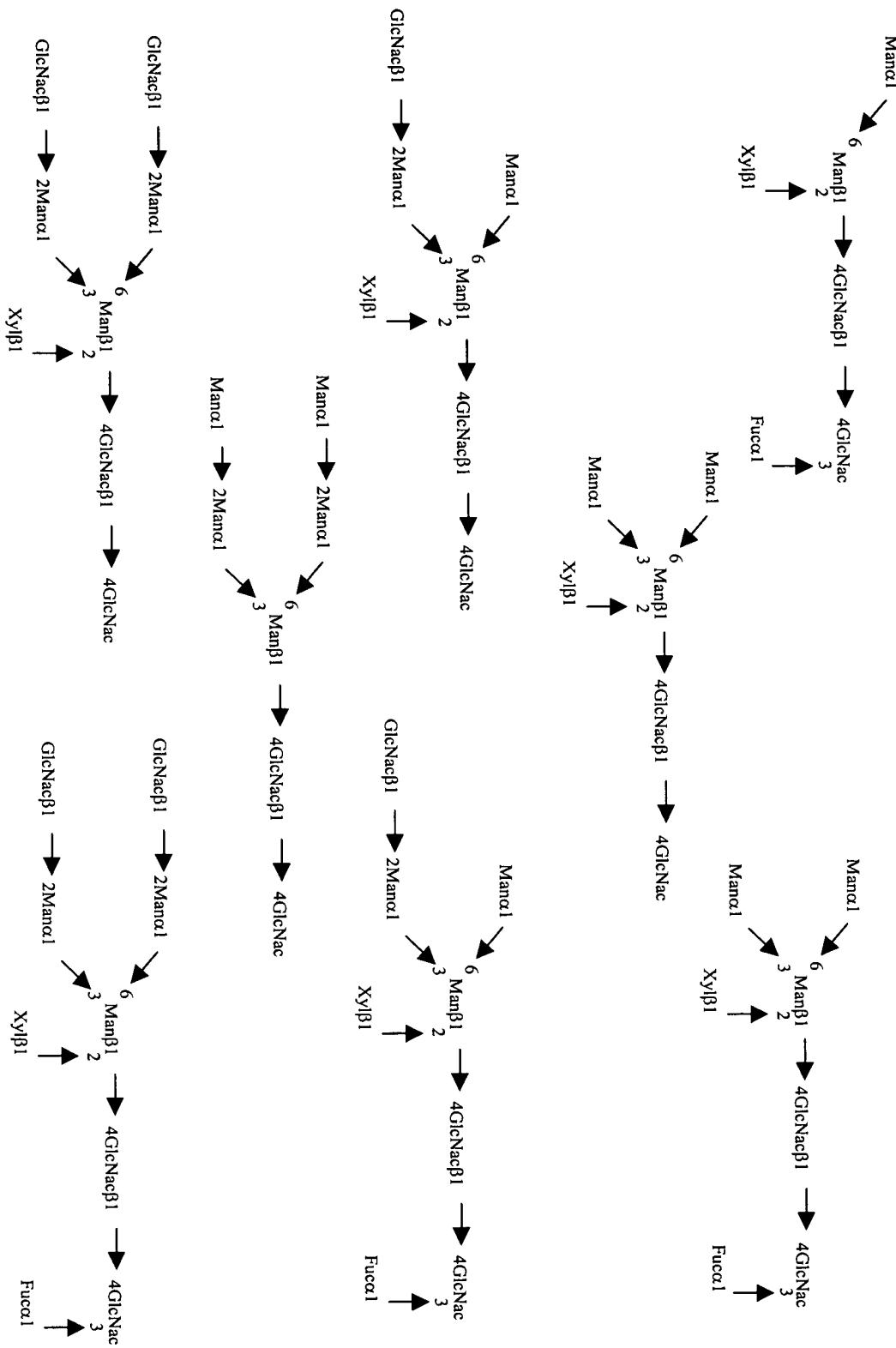


FIG. 12-1

## FIG. 12-2

CAAATCTCAGAATGAATTCCACTGTGCAGTAGAATACGAGATCTGGCGAAGATTGGGTTTGAAGACTTCTGGGAGAAG  
TTTGGAAACAAGGGCATAGAAGACCACCCCAAGGATTATACCGCAGGTATAAAACTGCACTGGTATCAAAGAAAG  
AGCGGGGACGTCAAGCAGTTCATTGAAACACTGTGATCATTGCTGATGTTGGCCCGATGCTTCGATGGAGAAAAT  
AATCAAAGGAGCCTTTGCGGTGACGATAGTCTGCTGACTTTCAAAGGGTTGAGTTTCCGGATGTGCAACACTCCG  
CGAATCTTATGTTAAGCAAAACAGTGTGATGAACTTTCAAACAGTATGGATACTTTGCGGAAGATATGTAATACATCAC  
GACAGAGGATGCACTGTGATTACGATCCCCAAAGGTGATCTCGAAACTTGGCTGAAACACATCAAGGATTGGGAACA  
CTTGGAGGAGGTTCAAGACGCCCTCAGGTTGTTTAAAGGAAAGTGAATATCAATGAGTTATCGACCTGACAAAAA  
CTTTTAAAGGTTGTTATAGATGGCTAGTTGTTAAAGGAAAGTGAATATCAATGAGTTATCGACCTGACAAAAA  
TGGAGAAGATCTTACCGTCATGTTACCCCTGTAAGAGTGTATGTTCAAAGTGTATAAATGGTTCATGAG  
AATGAGTCATTGTCAGAGGTGAAACCTCTTAAAGGAGTAAAGCTTATGATAGTGTGATACGTCAGTTAGCCGGTTGGT  
CGTCACGGGCGAGTGAACCTGCTGACAATTGCAAGGGAGGTGAGCGTGTGCTGGTGGACAAAAGGATGGAAAGAG  
CCGACGAGGCCACTCTCGGATCTTAACTACACAGCAGCTGCAAAAGAAAAGATTCTGTCAGGTCGTTCCAAATTATGCT  
ATAACCCACCCAGGACGCGATGAAAAGCTGCAAGTGTGTTAATATTAGAAATGAGATGTCAGCGGGTTCTG  
TCCGTTCTGGAAGTTGTCGTTGTTAATAGAAAATATAAAATTAGGTTGAGAGAGAAGATTACAA  
ACGTGAGAGACGGAGGGCCATGGAACCTTACAGAAGAGTCGTTGATGAGTTCATGGAAGAGATGTCCTATGTCGATCAGG  
CTTGCAAAAGTTGCTGATCTCGAACCGGAAAAAAAGAGTGTGATGTCGCAAAAGGGAAAATAGTAGTAATGATCGGTCACTG  
GAACAAGAACTATAGAAATGTTAAGGATTGGAGGAATGAGTTTAAAGAATAATTAAATCGATGATGATTGCGGAG  
CTACTGTCGCCGAATCGGATTGTTAAATAGATCTTACAGTATCACTACTCCATCTCAGTGTGTTCTGTCATTAA  
TATGCAAGGTGTCGAACACCATGGTAACAAACACTTGTCCCTTCTGGCTCATGTCCTCCCTGGCCTCTCCCTCA  
ACTTGACAGCCGCATGTCGACAATGGTGGCAAGGACGCCATACCTGGCTGGCTGACTGGGAGCCTTCATGTG  
AACCTTGACTGCGAGGAGAGGCGAGATCTCTGATCAGTGTGAGAAGCTCTCATGGAGATGGCAGAGCTCATGGTCTCAGA  
AGGTGAAGGATGCGAGTTATGAGTACTCTGATCAGTGTGACTGTGGATGGCTCCCCAAAGAGATTCAAGGAGAC  
TTCAAGGAGACCCCTAGCGCTTCTCATGGGATTGCCAGCTAGCTAATTATGTTACAGCAAAGGACTGAAGCTAGGG  
ATTTATGCAAGATGTTGAAATAAAACCTGGCAGGCTTCCCTGGGAGTTGGGATACACTGACATTGATGCCAGACCTT  
TGCTGACTGGGAGTAGATCTGCTAAATTGATGGTTACTGTGACAGTTGGGAAATTGGCAGATGGTTATAAGC  
ACATGTCCTGGCCCTGAATAGGACTGGCAGAACGATTGTGACTCTCTGAGTGGCTGGCCCTTTATATGTCG  
AAGGCCAATTATACAGAAATCCGACAGTACTGCAATCAGTGGCAAAATTGCTGACATTGATGATTCTGGAAAAGTAT  
AAAGAGTATCTGGAACATCTTAAACAGGAGAATTGTTGATGTTGACATTGGGACCCAGGGGGTTGGAATGACCCAG  
ATATGTTAGTGGCAACTTGGCTCAGCTGGAAATCAGCAAGTAACACTCAGATGGCCCTCTGGCTATCATGGCTG  
CCTTATTATGCTAAATGACCTCCGACACATCAGCCCTCAAGCCTGAAAGCTCTCAGGATAAGGACGTAATTGCCAT  
CAATCAGGACCCCTGGCAAGCAAGGGTACCAAGCTAGACAGGGAGACAACCTTGAAGTGTGGGAAACGACCTCTCAG  
GCTTAGCCTGGGCTGAGCTATGATAAACCCGAGGAGATTGGTGGACCTCGCTTATACCATCGCAGTTGCTCCCTG  
GGTAAAGGAGTGGCCTGTAACCTGCTGTTCATCACAGCTCCCTGTGAAAGGAAGCTAGGGTCTATGAATG  
GACTCAAGGTTAAAGAGTCACATAAATCCACAGGACTGTTGCTCAGCTATGTTAAAGGAGCAGAATTGACCTA  
GGCTCGAAAGTTGCAACCCATCTCCTTAAAGGGTCCGAAAATAATAAATTAGGTAAGGGCGTTCAAGGCG  
AGGCTAAACCCAAAAGTTGATGAAAGTGTGAAAGGAGTGTGATAATTGATTGAAGATGAGACCGAGCCTGCG  
GGATTCTGATTGCTTAAATATGCTTACTCAATCAGTGTGCTGGCTGAGCTGGGCTTATAGGTGACAGGTAC  
CCCTATAGAATTGTTAAACGTTGACAAATTGCTGAGCTTCAACACACAGCAAGCAAGAAACTACTGTC  
AGCAGTTGCGAGGTGTTGAAACCTTCCCTAGAGCACCGTCAAGATTCTGGGATGTTATAAGGTGACAGGTAC  
AATGCGTTTAGCTCTAATTACTGCGTGTGGGGCTTTGATGACTAGGAATAGAATAATCGAAGTAGAAAACCA  
GCAGAGTCGACACAGCTGAAACGTTAGATGCTACCCGAGGGTAGACGAGCTACGGTGCACATTGGCTGCTATAA  
ATAATTAGTTAATGAACTAGTAAGAGTACTGGACTGCTACAATCAGAATACTTTGAAAGTATGTCGGGTTGGCTGG  
ACCTCTGCACCTGCTTAAATGCAAGGCTGCTGAAATTTAAAGTTGTTCTAAACACACAGTGGTACGTACGATA  
ACGTACAGTGTGTTTCCCTCACTTAAATCGAAGGGTAGTGTCTGGCGCGGGAGTAAACATATGTTCATATAT  
GTCCGTAGGCACGCTAAAGCGAGGGATCTGAATTCCCCGGAACCCCCGGTTGGGCCAGGTACCAATTCTG  
ACGAAAGGGCCTGCTGATACGCCATTGTTATAGGTTAATGCTGATGATAATAATGGTTCTTAGACGTCAGGTGGCA  
TTCCGGGAAATGTGCGCGAACCCCTATTGTTTATTGTTCTAAATACATTCAAAATGATCTCGCTCATGAGACAATAA  
CCCTGATAATGCTTCAATAATATTGAAAAAGGAAGAGTATGAGTATTCAACATTCCGCTGCGCCCTTATCCCTTTT  
TGGCGCATTTGCCCTCTGTTTGTCTACCCAGAAACGCTGGTGAAGTAAAGATGCTGAGATCAGTTGGGTGCAC  
GAGTGGGTTACATCGAACTGGATCTAACACAGCGGTAAAGATCCTGAGGAGTTTGCCTGGGAAAGAACGTTCC  
AGCACTTTAAAGTTCTGCTATGTCGGCGGTATTATCCCGTGTGACGCCGGGAAAGAGCAACTCGGTGCC  
CTATTCTCAGAATGACTGGTGTGAGTACTCACCAAGTCAGCAGAAAAGCATCTACGGATGGCATGACAGTAAGGAAATTAT

## FIG. 12-3

GCAGTGCTGCCATAACCATGAGTGATAACACTGCGGCCAACTTACTTCTGACAACGATCGGAGGACCGAAGGAGCTAACCGA  
GCTTTTTGCACAACATGGGGATCATGTACTCGCCTGATCGTGGAACCGGAGCTGAATGAAGCCATACCAAACGA  
CGAGCGTGACACCAACGATGCCCTGCAGCAATGGCAACAAACGTTGCACAACTATTAACTGGCGAACTACTTACTCTAGCTT  
CCCGCAACAATTAAATAGACTGGATGGAGGGCGATAAAGTTGAGGACCAACTTCTGCCTCGGCTCGGCCCTCCGGCTGGCTGG  
TTTATTGCTGATAAATCTGGAGCCGGTGGAGCTCGCGTATCATTGAGCAGCACTGGGGCCAGATGGTAAGCCCTC  
CCGATCTGAGTTATCTACAGCGGGAGCTAGGCAACTATGGATGAACGAAATAGACAGATCGCTGAGATAGGGCCT  
CACTGATTAAGCATTGGTAACTGTCAGGAACTGTTACTCATATATACTTTAGATTGATTAAAACCTTATTAAATT  
AAAAGATCTAGGTGAAGATCTTTTGTATAATCTCATGACCAAAATCCTTAACGTGAGTTTCTGCGCTCAACTGCTGCTTGC  
AGACCCCGTAGAAAAGATCAAAGATCTTCTGAGATCTTCTGCGCTAATCTGCTGCTTGC  
ACACCCTGAGGAGCTACCAACTCTTTCCGAAGGTAACTGGCTCAGCAGAGCG  
CAGATACCAAATACTGCTCTTCTAGTGAGGCTAGTTAGGCCACACTCAAGAACCTGTAGCACCGCTACATACCT  
CGCTCTGCTAATCTGTTACCACTGGCTGCTGCCAGTGGCGATAAGCTGTCCTACCGGGTTGGACTCAAGACGATAGT  
TACCGGATAAGGGCAGCGGCTGGCTGAACGGGGGGTCTGTCACACAGCCAGCTGGAGCGAACGACCTACACCGAA  
CTGAGATACCTACAGCGTGAGCTATGAGAAAGCGCACGCTCCCGAAGGGAGAAAGGGGAGACAGGTATCCGGTAAGCGG  
CAGGGTGGAAACAGGAGAGCGGAGGGAGCTTCCAGGGGAAACGCTGGTATCTTATAGTCCTGCGGTTTCC  
ACCTGACTTGAGCTCGATTGGTGTAGCTCGTCACTGGGGCGAGCCTATGAAAACGCCAGCAACGCGCTT  
TTACCGGTTCTGGCTTTGCTGGCTTTGCTCACATGTTCTTCTGCGTTATCCCTGATTCTGTTGAGTAAACGCTAT  
TACCGCCTTGAGTGAGCTGATACCGCTCCGCGAGCCGAACGACCGAGCGCAGCGAGCTAGTGA  
AGCGCCTGATCGGTATTTCTCCCTACGCACTGCGGTATTTACACCGCATATGGTGA  
CTCGATGCCGATAGTTAACGAGTACACTCCGCTATCGCTACCTGACTGGCTATGGCTGCCGCCCCGACACCCGCA  
ACACCGCTGACGCCCTGACGGGCTTGTCTGCTCCCGCATCCGCTACAGAACAGCTGTCAGCGCTCCGGAGCTG  
CATGTCAGAGGTTTACCGCTCATACCGGAAACGCGGAGGAGCTGGTAAAGCTCATCAGCGTGGTGTGAAGCG  
ATTACAGATGTCGCTGTTCATCCGCTCAGCTGTTGAGTTCTCAGAGCCTTAATGTCGCTTCTGATAAAG  
CGGCCATGTTAAGGGGTTTCTGTTGGTCACTGATGCCCTCGTGAAGGGGAAATTCTGTTATGGG  
ATGATACCGATGAAACGAGAGAGGATGTCACGATACTGGGTTACTGATGATGAACATGCCGGTTACTGGAACGTTG  
GGTAAACAACCTGGCGTATGGATGCGGGGGACCAGAGAAAAAAATCACTCAGGGTCAATGCCAGCGCTCGTTAATACAG  
ATGAGGTGTTCCACAGGGTAGCCAGCAGCATCTCGCATGTCAGATCGGAAACATAATGGTGCAGGGGCTGACTTCCG  
GTTCCAGACTTACGAAACACGGAAACGGACCATTCTGATGTTGCTCGGCTCAGGCTCGAGACGTTTGCGAGCAGCTC  
GCTTACCGTTCGCTCGGTATGGTATTCTGCTAACAGCTGAGGCAACCCCGCAGCCTAGCCGGTCTCC  
ACAGGAGCACGATCATGCCACCCGTTGGCAGGACCAACGCTGCCAGATGCCCGTGTGCGGAGATGGCG  
GACCGATGGATGTTCTGCAAGGGTTGTTGCGCATTACAGTCTCCGCAAGAATTGATTGGCTCCATTCTGG  
AGTGGTGAATCCGTTAGCGAGGTGGCCCGGCTTCCATTAGGTGAGGGTGGCCGGCTCATGCCAGCGACGCAACG  
GGGAGGCAGACAAGGTATAGGGCGCGCTACAATCCATGCCAACCGCTCCATGTCGCGAGGGG  
CCGTGACGATCAGCGTCCAGTGATGAAAGTTAGGCTGTTAAGAGCGGAGCGATCTGAAAGCTGCTCTGATGGTC  
TCATCTACCTGCCCTGGACAGCATGGCTGCAACGCGGGCATCCGATGCCGCCGGAACGAGAAGAATCAT  
AAATGGGAA  
GGCCATCCAGCTCGCGTCGCAACGCCAGCAAGACGTAAGCCCAGCGCTGCCGGCATGCGG  
GATAATGCCCTGCT  
TCTCGCGAAACGTTGGTGGGGGGACCAGTGACGAAGGGCTTGAGCGAGGGGCGTGC  
AAGATTCCGAATACCGCAAGCGAC  
AGGGCGATCATCGTCCGCTCAGCGAAAGGGTCTGCCGAAATGACCCAGAGCGCTGCCGG  
ACCTGCTTACGAG  
TTGCGATGATAAAGAAGACAGTCATAAGTGGCGAGCATAGTCATGCCCGGCCACCGGAAGGAGCTGACTGG  
AGGCTCTCAAGGGCATCGGTGAGATTAGGTGACACTATA

# FIG. 13-1

GTATTTTACAACAATTACCAACAACAACAACAACAGACAACATTACAATTACTATTACAATTACAATGGCATAACACA  
CAGACAGCTACCACATCAGCTTGTGACACTGTCCGAGGAACAACTCCCTGGTCAATGATCTAGCAAAGCGTCGCTCT  
TTACGACACAGCGTTGAAGAGTTAACGCTCGACCGCAGGCCAAGGTGAACCTTCAAAAGTAATAAGCGAGGAGC  
AGACGCTTATTGCTACCCGGCGTATCCAGAATTCACATTACATTTAACACGCAAATGCCGTGATTGCTGCA  
GGTGGATTCGATCTTAGAACTGGAATATCTGATGATGCAAATTCCCTACGGATATTGACTTATGACATAGGCGGAA  
TTTGATCGCATCTTCAGGGACGAGCATATGACTCTGATGCCAACCTGGACGTTGAGACATCATGCC  
ACGAAGGCCAGAAAGACAGTATTGAACTATACTTTCTAGGCTAGAGAGAGGGGGAAAACAGTCCCCAACTTCCAAAG  
GAAGCATTGACAGATAACGCAAATCCCTGAAGACGCTGTGCAACATACATTTCAGGACATGCGAACATCAGCGAT  
GCAGCAATCAGGACAGTGATGCGCATACAGCATATGACATACCAGCGATGAGTTGGGGCGGCACCT  
TGAGGAAAATGTCATACGTGATGCCCTTCACTTCCGAGAACCTGCTTGTGAGGATTCATGCTCAATTG  
GACGAATCAACGCGTTTTCGCGATGGAGACAAGTTGACCTTCTTGATCAGAGAGTACTTTAATTACTG  
TCATAGTTATTCTAATATTCTAAGTATGTCACAAACTACTTCCGGCTCTAATAGAGAGGTTACATGAAGGAGT  
TTTAGTCACCAGAGTTAACCTGGTTTGTAGTTCTAGAATAGATACTTTCTTGTACAAAGGTGTGGCCCAT  
AAAAGTGTAGATAGTGACAGTTTATACGCAATGGAAGACGATGGCATTACAAAAGACTCTTGCAATGTGCAACAG  
CGAGAGAATCCTCTGGGATTCAATCATCAGTCAATTACTGTTTCCAAAATGAGGGATATGGTATCGTACCTATT  
TCGACATTCTGGAGACTAGTAAGAGGACGCCAAGGAGTCTAGTGTCAAGGATTTCGTGTTCACAGTGTAAAC  
CACATTGAAACATACCGGCAAAGCTCTACATACGCAAATGTTTGTCTCGAATCGATTGATCGAGGGTAAT  
CATTAACCGTGTGACAGGAGGTCGAATGGGATGTGGACAAATCTTGTACAATCTTGTCCATGACGTTTACCTGC  
ATACTAAGCTTGCCTCTAAAGGATGACTTACTGATTAGCAAGTTAGTCTCGGTTGAAAACGGTGTGCCAGCATGT  
TGGGATGAGATTCGCTGGCTTGGGAAAGCATTCCCTCGTGAAGAGAGGCTTGTGAAACAGGAACCTTACAGAGT  
GGCAGGGACGCATTAGAGATCAGGGTGTGATCTATGTCACCTCCACGAGAGATTAGTGAACAGTACAAGGCT  
CTGTGGAACATGCGCTGCGTGCACATTAGGAAGAGATGGAAGAAACGGAAAGCTGATGACATGCACTTTCAGAATTATCG  
GTGTTAGGGAGTCTGACAATTGATGTTGATTTTCCAGATGTGCAATCTTGGAGTTGACCCAAATGACGGC  
AGCGAAAGTTATAGTCGCGTCAATGAGAATGAGCGCTGACTCTCACATTGAAAGCACCTACTGAGGCGAATGTTG  
CGCTAGCTTACAGGATCAAGAGAAGGTTCAAGAGGTCATGGTAGTTACCTCAAGAGAAGTTGAAAGAACCGTCCATG  
AAGGGTTGATGCCAGGGAGAGTTACAATTAGCTGGTCTTGTGGAGATCATCCGAATCGTCTTATCTAAGAACGA  
GGAGATAGCTTAAAGCAGTTCAATGGCAGCGAGATTGTTAATCGTAAGCAGATGAGCTGATTGTGATCA  
CGGGTCCGATTAAGGTCAGCAAATGAAAACCTTATCGATAGCCTGCTAGCATACTATCTGCTGGTGTGAACTCTC  
GTCAAGATCCTCAAAGATACTAGCTGCTATTGACCTTGAACCCGTCAAAGGTTGGAGTCTGGATGTTGATCTAGGAA  
GTGGTTAAATCAAACCGGCAAAGACTGATCGCATGGGTTGTTGAAACCCACGGAGGAGTATCATGGCCTT  
TGAATATGAGCAGGGTGTGGTACATCGATGATTGGAGAAGAGTAGCTGTTAGCTGAGTCTGTTGTTATTCC  
GACATGGCAAACCTCGCAGACTGCTCGAACCGAGAACCGCATGTGAGTAGCGCAAAGGTTGTTCTGT  
GGACGGAGTTCCGGGTGTGAAAAACCAAAGAAATTCTTCCAGGGTTAATTGATGAGATCTAATTAGTACCTG  
GGAAGCAAGCCGGAAATGATCAGAAGACGTCGAATTCTCAGGGATTATTGTCAGGACAGGACAACGTTAAAC  
GTTGATTCTTCATGATGAATTGGGAAAGCACAGCTGTCAGTTCAAGAGGTTATTGATGAGAGGTTGATGTT  
GCATACTGGTTGTTAATTCTGTGGCGATGTCATTGTCGAAATTGCAATGTTACGGAGACACACAGCAGATT  
CATACATCAATAGAGTTCCAGGATCCCGTACCCGCCCCATTGCAATGAGGTTGACGGAGACACAGCAGA  
ACTACTCCGGTGTCCAGCGATGTCACACATTATCTGAAACAGGAGATATGAGGGCTTGTGATGAGCACTTCTCGG  
TAAAAGTGTGTTCGCAGGAGATGGTCGCCAGCGCCGTGATCAATCGATCTCAAACCCCTGATGCCAGATCC  
TGACTTTACCAATCGATAAAGAAGCTCTGCTTCAAGAGGGTATTGATGTTCAACTGTGATGAGTCAAGGC  
GAGACATACTCTGATGTTCACTAGTTAGGTTAACCCCTACCGGTCTCCATGTCAGGAGACAGGCCACATGTTT  
GGTCGCAATTGTCAGGCACACTGTCGCTCAAGTACTACACTGTTGTTAGGATCTTGTGTTAGTACATTAGAGATC  
TAGAGAAACTTAGCTGACTTGTAGATAAGGTCGATGCAAGGAAACAAATGCAATTACAGATTGACTCGGTG  
TTCAAAAGGTTCCAATTTGTCAGGCCAAAGACTGTTGATATTCTGATGTTGAGCTTACTATGATAAGTGTCT  
CCCAGGCAACAGCACCAGTGAATAATTGATGCTGTTGCTGACCTAAGGATCAATCAAACCAACTAATACCTATG  
GATGCAATTGTCAGGATGTTGATGCTGACCTAAGGATCAATCAAACCAACTAATACCTATGTCAGGCAACGGCG  
GAAATGCCAGCCAGACTGGACTATTGAAAATTGAGGCTGATGTTAAAAGAAACTTAAACGCAACCGAGTTGCTGG  
CATCATTGATATTGAAAATCTGATCTTGGTTGAGATAAGTTTTGATGTTATTGCTTAAAGAAAAAGAAA  
CAAATAAAATGTTCTTGTTCAGTAGAGAGTCTCAATAGATGGTTAGAAAAGCAGGAACAGGTAACAAATGGCAG  
CTCGCAGATTGATTTGAGGTTGCCAGCAGTTGATCACTACAGACACATGATTAAGCACAACCCAAACAAAAGTT  
GGACACTCAATCCAAACGGAGTACCCGGCTTGCAGACGATGTTGACCTTCAAAAAAGATCAATGCAATTG  
CGTTGTTAGTGAAGCTTACTAGGCAATTACTGGACAGTGTGATTGAGCAGATTGTTGAGCTTGTGATATA  
GCGCAGATTGAGGATTCTCGAGATCTGACAGTCATGTCGCGATGGATGTTGAGCTTGTGATATAACCGA

FIG. 13-2

## TRANSGENIC VECTOR FOR rGCB EXPRESSION

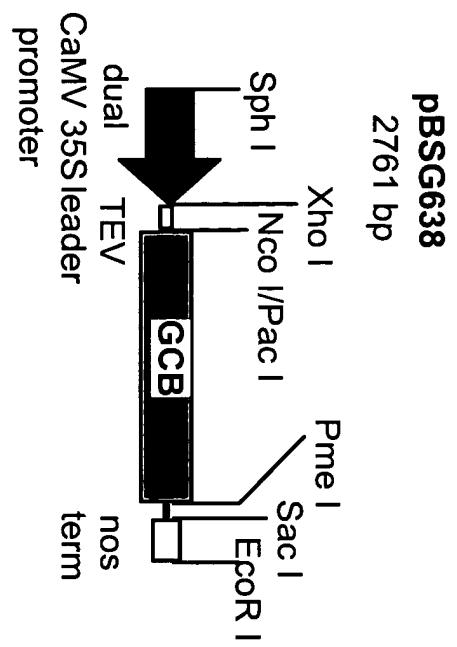
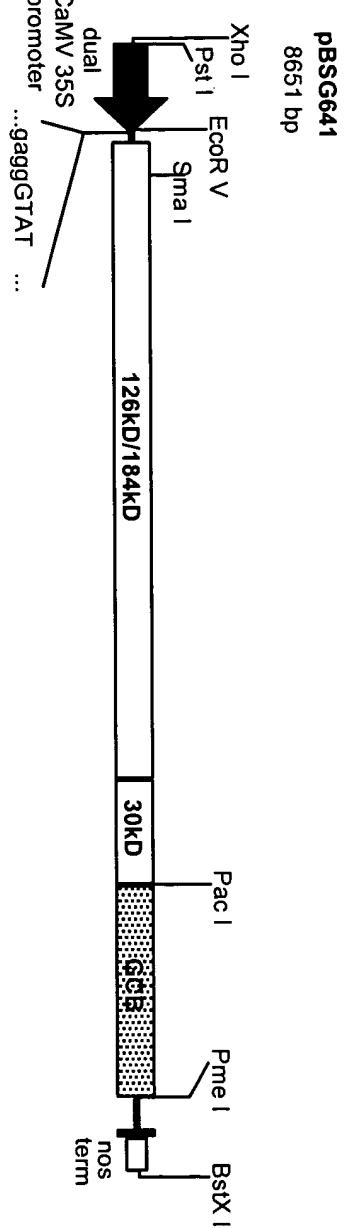


FIG. 14

## VIRAL VECTOR FOR rGCB EXPRESSION



**FIG. 15**